

Lesson Writer for Chemistry

Developed By
Sally Solomon
Drexel University



BECAUSE LEARNING SHOULD KNOW NO BOUNDS™

Lesson Writer for Chemistry at a Glance

Program Description

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System Requirements

intellimation
Library for the Macintosh

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Lesson Writer for Chemistry at a Glance

Program Description

Lesson Writer lets you write tutorials, quizzes, and tests for chemistry without learning an authoring or programming language. Questions of varying detail and sophistication may be written, and you can give students hints, pictures, and diagrams to aid them.

- You can create questions, responses, branches to other questions, and scoring.
- Up to 33 correct or anticipated wrong answers per question can be stored.
- Sample questions on inorganic nomenclature are included.
- MacPaint pictures of laboratory equipment are provided.
- This program gives you the flexibility to design challenging lessons and tests.
- Students can use Lesson Writer as an individual study aid.
- Lesson Writer is particularly useful for training and developing lab techniques.

System Requirements

Minimum Memory	128K
Suggested System	Version 6.02 or later
Other Requirements	MacPaint

Using this Program

Everything that you will need to know in order to operate this program is described in the following documentation. Please turn the page to begin.

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Lesson Writer is a Macintosh application with which a student or instructor can quickly and easily create interactive tutorial lessons. It is an authoring tool for instructors to develop lessons, quizzes, and tests or for students to use an aid for self-study. The application provides the framework in which questions of varying detail and sophistication can be written. Lesson Writer allows the author to present hints to the user and allows for question responses to branch out and lead to other questions. Pictures and diagrams may also be added to questions and partial credit may be awarded to designated responses.

Lesson Writer has two main components. Lesson Writer is the component used to develop a new lesson: write questions, responses, hints, insert pictures, branch to other questions, score and to edit any questions already written. Lesson Runner is used by the student to practice the lesson or test.

Before using the **Lesson Writer** disk, be sure to make a back-up copy of the program disk and prepare another duplicate disk to be used as a working disk. In order to prepare a working disk, transfer the Sample Lessons, Useful Pictures, and Lesson Pictures to a data disk. The working disk should include only the System folder, Lesson Writer, Lesson Runner and any pictures you have created for your lessons. (see section 2.4 for inserting pictures)

Part Two *Using Lesson Writer*

Creating a New Lesson

Insert the **Lesson Writer** disk and boot it up. The desktop will contain several files: a system folder, Lesson Writer, and Lesson Runner. Open Lesson Writer by clicking the mouse twice on the LW icon. When the main menu appears you will be ready to begin to create a lesson. The menu will provide you with the following choices:

File Edit Questions Windows Lesson Help

Writing Questions






Pull down the **File** menu and choose New to begin the lesson. A question window will appear and the number of the question will appear in the upper right hand corner. The screen will prompt you as follows:

The question to be asked is:

Begin to type the text of the first question. The line following the prompt indicates how far you can type before entering the area in which a picture could be placed. Begin typing the question and stop when you reach the line (if you type beyond the line, only the text preceding the line will appear in your lesson.) Then hit "return" and continue typing your question on the next line.

Note:

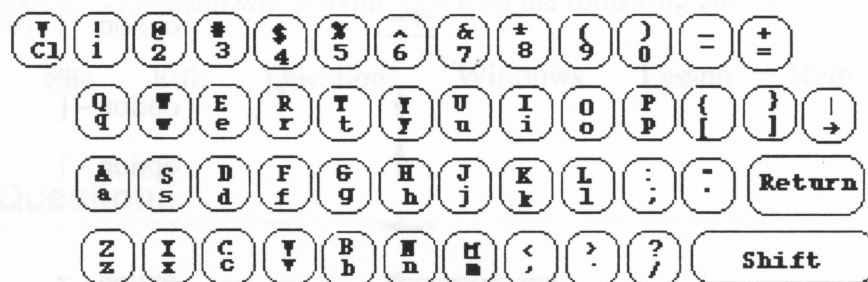
There is a special font on the disk including many symbols often used in chemistry, but not present on an ordinary keyboard. Some of these characters and their keyboard locations are among the ones described below.

<i>Symbols</i>	<i>Keyboard Location</i>
Subscripts 1234567890	option - number
Superscripts 1234567890	option - shift - number
+	option + (as in NH₄⁺)
-	option - (as in OH⁻)
	option - (the symbol above \)
	option - {
	option - }
	\
 (Arrow extender)	option - z

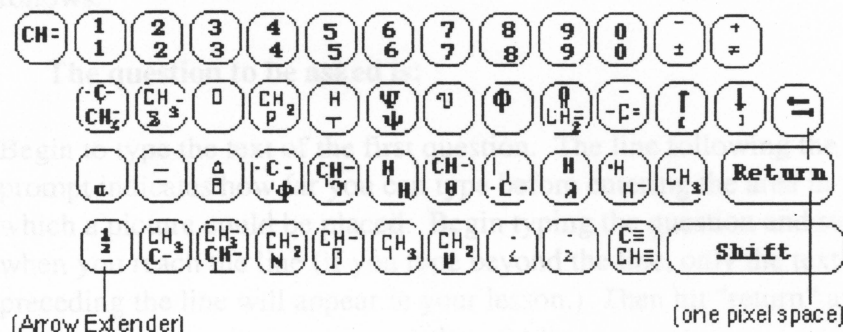
Organic Formulas

Use the keyboard diagrams below to help you find the symbols needed to create organic formulas such as the samples shown. Note there is a keystroke that moves characters by one pixel only (the space bar moves characters 4 pixels). This is helpful in positioning substituents. To type a one pixel space use option \

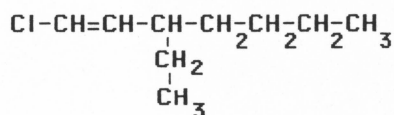
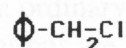
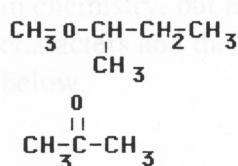
Regular Keyboard



Option Keyboard



Sample Formulas:



After you have typed your question as you want it to appear, click the mouse once on the Windows menu selection at the top of the screen and pull it down. You will have the following choices:

Answers

Help

Branch

Score

Pictures

Correct Answers

To prepare the answers to your questions, click the mouse once on the option **Answers** under the menu selection **Questions**.

A window labeled **Correct Answers and your responses** appears next with the question number repeated in the upper right hand corner. In the first line type the correct answer to the question. In the space below, type the response you would like the student to receive after giving the correct response.

e.g. **Great! That's correct.**

On the next line on that screen, type any other answers which you will accept as correct or partially correct and the corresponding response to those answers.

On the bottom of the page you will see additional specifications for your questions and answers. Unless otherwise indicated the program will:

- a. **Ignore Case** – the program will accept the correct response and ignore the case used in typing it.
- b. **Omit Space** – the program will accept the correct response and ignore the blank spaces in the response.
- c. **Exact Match** – the program will recognize as correct only those responses which are textually identical to the "Correct answer" as you typed it not including case and blank spaces.

If you choose to change any of these defaults, do so by clicking the mouse once on one of the following choices:

- a. **Recognize Case** – the program will accept a response only if the case corresponds to the case typed in the correct response.

- b. **Include Spaces** – the program will recognize blank spaces appearing in an answer as significant; therefore blanks in the response must be identical to those typed in the “Correct Answer”.
- c. **Partial Match**– the program allows for variation in the text of the response and recognizes key words as correct.

One very useful feature is the “wild card” asterisk (*) which can stand for any letter. For instance, suppose the correct response to a question is “yes” and you type “y*s” in as the correct answer. A match is made for yas, ybs, and so on. You can use more than one * in a given response, but they may not be consecutive (**). If you choose to use the asterisk, you may not use the Partial Match option.

Anticipated Responses

Once you have indicated your specifications for the correct answer(s), you may provide the student with some anticipated responses and comments about them. To do so, click once on **Next** at the bottom of the page. Notice that the next screen to appear is labeled **Other answers and your responses** and is Numbered **Page 2** in the lower right corner. You have the next 10 pages to put in the possible student responses and constructive, instructive comments to correspond with each one.

Enhancing Questions

When you have completed your responses to question 1, choose your next operation by pulling down the menu under **Windows**. You will have the following choices:

Questions
Help
Branch
Score
Picture

If you would like to provide hints for students, choose **Help**. Here you can supply the student with a:

Little Hint
Big Hint
Answer

If you would like incorrect responses to your questions to lead to other specific questions choose **Branch**. Here you can send the student to other questions you indicate after a prescribed number of attempts to answer original question.

To weight the responses to your questions choose **Score**. The response to each question may have a variety of weightings attached to them, and you may indicate this on the scoring options. For example, if a student responds correctly on the first attempt, he/she would receive 3 points; on the second try 2 points; and on the third try only 1 point.

To insert Pictures or diagrams into your questions, it will be necessary to create those using MacPaint and then bring them into **Lesson Writer**. The MacPaint document you want to use as your picture must occupy no more than the upper left 60% of the Macintosh screen (not the entire MacPaint "page") available for creating MacPaint documents. After creating your picture in MacPaint move it to the uppermost lefthand corner of the MacPaint page making sure that it doesn't go off the screen or all or part of it will be lost) and save it. Copy the MacPaint file onto your lesson Writer disk. The MacPaint document **MUST** be on the Lesson Writer disk or the pictures and/or diagrams will not appear in the lesson.

Once you have inserted a MacPaint document into the lesson do not change the name of the MacPaint document or remove it from the disk. Once you have created your pictures in a MacPaint document and they reside on the **Lesson Writer** disk you may access them as you write each question by selecting **Picture** under the menu selection **Windows**. A dialog box appears with a list of MacPaint documents available to include. Select the one you want and click on open. Your picture is now in the lesson and will appear on the screen with the question you have associated it with.

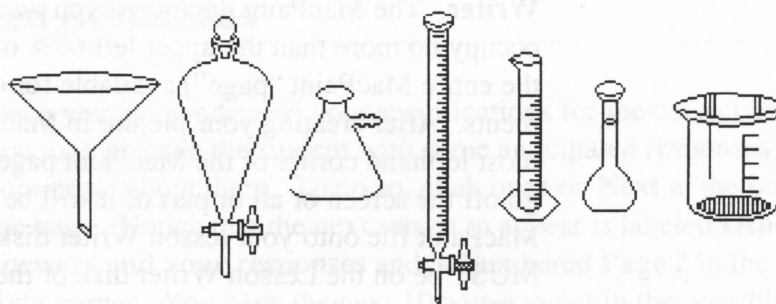
It is possible to allow students to use the mouse and mark the entire picture or diagram they choose for the correct answer. This is done at the time of inserting the picture into the question by using the crosshairs cursor to produce a rectangle around the part of the picture that represents the answer. Type your response to the student in the corresponding box. Use Undo to remove the rectangle and redraw it. Proceed by clicking on Next. There is room for 5 areas and 5 corresponding replies. Be sure to make the first answer the correct one, since only that one receives a score. In order to replace a picture or a diagram, hold down the option key before selecting pictures from the menu. The old picture is automatically deleted. You will see the

original dialog box with the list of available MacPaint pictures. Choose the one you want necessary to create those using MacPaint and then bring them into **Lesson Writer**.

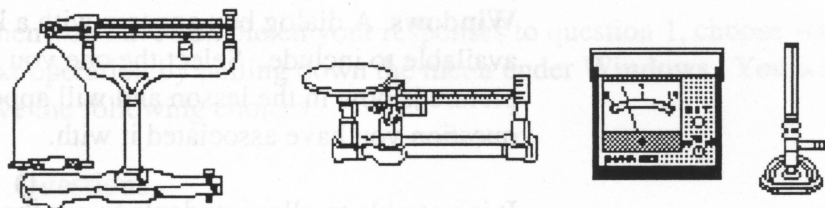
Note:

In the folder labeled “Useful Pictures” are three MacPaint documents filled with pictures sized to fit into Lessons created with the Lesson Writer. A sampling of the pictures included in these three documents called “glassware”, “equipment”, and “warning symbols” is shown below.

Glassware includes a variety of flask, beakers, and measuring devices such as:



In the document called “equipment” you will find pictures of miscellaneous devices including:



In “Warning Symbols” are eight figures such as the one below:



Cut the picture needed from one of the three large documents to create whatever diagram you wish to use for your question. (Be sure to save the original documents!)

Under Windows select **Pictures**. A dialog box appears with a list of MacPaint documents* available to include. Select the one you want and click on open. Your picture is now in the lesson and will appear on the screen.

***Note — Using the Rectangle Maker**

If you wish to have students use the mouse to answer a question this is possible. Use the crosshairs cursor to produce a rectangle around the part of the picture that represents the answer. Type your response to the student in the corresponding box. Use Undo to remove the rectangle and redraw it. Proceed by clicking on Next. There is room for 5 areas and 5 corresponding replies. Just be sure to make the correct answer the first one, since only that one receives a score.

To Save the Question

Select **Save** under **Question** to save your lesson. A window will appear with a list of your question(s). By using the buttons on this window you may: Add a Question (the question window reappears with the next consecutive question number) or Change a Question.

To Delete a Question

Be sure that you really want the question deleted since at this time delete cannot be canceled. Select the question that you wish to delete from the Questions in **Lesson** dialog box.

After completing all the steps necessary to create your lesson, you are now ready to use your lesson. Save your work; quit the document; and return to the desktop.

Part Three *Using Lesson Runner*

At the desktop, click twice on the **Lesson Runner** icon corresponding to the lesson you want to complete. Under the main menu, select **Run** and proceed to follow the prompts. Remember that pictures must be on the disk! If you give a student the Lesson Runner, you must also give the MacPaint documents used in the lesson (in a folder, if you like).

Part Four *Sample Lessons*

This disk includes two sample lessons on inorganic nomenclature called Naming and Formula writing. You can use these as is or you can modify them. If you wish to modify them open the Lesson Writer application and under file select Naming or Formula writing. Open them and make additions or changes according to the instructions above for creating new lessons.

Lesson Writer can be used repeatedly to create a wide variety of evaluation and tutorial instruments. Existing lessons may be updated and modified to meet student needs. Picture files may be accessed by several lessons and can be established as "permanent" resources for learning tool development.

Also available from Intellimation



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Annenberg/CPB Collection

Established in 1981, the *Annenberg/CPB Collection* consists of over 30 video and audio series which cover the Humanities, Sciences and Mathematics. This award winning collection of video and audio programming have aired on PBS and cable stations across the country and can be purchased for pleasure viewing or for college credit.

Japanese Language-CALL (Computer Accelerated Language Learning)

The *CALL Education Project* was established by Nippon Television Cultural Society (NTVCS) in 1984 to provide universities, businesses and governments with effective Japanese Language Learning materials using computers, videodiscs and other advanced technology. The product line called *Interactive Japanese* will feature two products, *Understanding Written Japanese (UWJ)* for the Macintosh, and *Understanding Spoken Japanese (USJ)*, and will be available by Fall 1990.

Environmental Resources Collection

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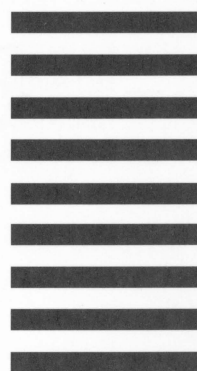
- ☐ Library for the Macintosh
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